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SI 370

Karate Network with Gephi

(f) Report the following metrics computed by Gephi. For each metric, use a sentence to explain what it means.

* (f-1) Average Degree
* (f-2) Network Diameter
* (f-3) Graph Density
* (f-4) Modularity
* (f-5) Number of connected components
* (f-6) Average clustering coefficient

f-1) Average Degree = 4.588

Average degree means that most nodes have an average of 4.588 edges.

f-2) Network Diameter = 5

This measures the width of the network, the max paths from end to end.

f-3) Graph Density = .139

There are .139 edges given the possible number of edges between vertices.

f-4) Modularity = .409

According to Wikipedia, **Modularity** was designed to measure the strength of division of a network into modules (also called groups, clusters or communities). Networks with high modularity have dense connections between the nodes within modules but sparse connections between nodes in different modules. The modularity in the set is .409, so we expect less density but many connections between nodes.

f-5) Number of connected components = 1

According to Wikipedia, connectivity is the minimum number of elements (nodes or edges) that need to be removed to disconnect the remaining nodes from each other. The whole network is composed of one connected node. But if node zero were removed, there would be 2 connected components.

f-6) Average clustering coefficient = .588

This is the tendency for nodes to cluster together. At .588, there is medium clustering; and this makes sense because we know the karate club split into two factions.

